in cats (young) loss of reflexes for 30–40 minutes; in cats (old) loss of reflexes for 50–70 minutes; in dogs, loss of reflexes for 75–90 minutes.

In the turtle transverse lesion of the cord usually does not abolish the reflexes except momentarily. This is also true for the pigeon. In other words, lesions of the dorsal roots produce the same shock effects on the spinal reflex mechanism of the limb involved as transverse lesion of the cord itself.

The present theories of spinal shock may be summarized under three heads, viz., (*a*) inhibition due to the trauma; (*b*) loss of tonus impulses to the reflex centers; and (*c*) lesions of the reflex arcs themselves.

The last theory is not applicable to these results. Either one or both of the other two may be applicable to the results here reported. That is the shock may be due to the temporary effect of absence of tonus impulses, or to irritation of inhibitory nerves, or to both of these.

The work is being continued with the purpose of determining this point.

Clyde Brooks

A NOTE ON THE OCCURRENCE OF TWO WEST INDIAN FISHES AT BEAUFORT, N. C.

During August, 1907, the writer collected in the harbor of Beaufort, N. C., two fishes which are for the first time reported from this locality. Both forms are of the tropical and subtropical faunas. A small specimen of *Abudeduf saxatilis* Linn., was seined August 10, 1907, at the Fort Macon jetties. Its length is 2.25 inches. The other form is *Ulæma lefroyi* Goode. A number of these were taken in a dipnet at Pivers Island, August 3, 1907. The smallest fish measured 0.40 inch in length, the largest 0.52 inch.

In order to ascertain the identity of these small fish, which had evidently been hatched only a few days prior to their capture, they were placed in an aquarium of running sea water, and there they were successfully reared. During the first week they were fed on copepods and larval crustaceans which were strained from the tow; this food was then changed to grated oyster on which they thrived vigorously. September 2, 1907, the smallest *Ulæma* measured 0.91 inch in length, the largest 1.12 inches; the rate of increase in length averaged 120 per cent. This method of rearing fry was employed this season for *Fundulus majalis*, which were hatched in the laboratory from eggs which had been artificially fertilized. The young *Fundulus* were reared until they had attained a length of 0.75 inch, when an accidental overflow of the aquarium permitted the fish to escape.

On August 21, 1908, on the landward side of one of the large shoals in the harbor, numbers of small specimens of *Ulæma lefroyi* were collected in a small seine of fine mesh.

For the opportunity of making these observations the writer is indebted to the Hon. Geo. M. Bowers, U. S. Commissioner of Fisheries.

Bartgis McGlone

St. John's College,
Annapolis, Md.,
September 1, 1908

CATALYTIC REDUCTION OF FATS AND OILS

About four years ago it was shown by Paal and Amberger[1] that palladium could be obtained in a particularly active colloidal aqueous solution (hydrosol). Subsequently the senior author demonstrated[2] that this liquid, in presence of hydrogen, was capable of causing the catalytic reduction of nitrobenzene. The work has now been extended to include certain other substances,[3] the most generally interesting of which are oleic acid and a number of oils.[4]

The acid, in the form of its potassium salt, is dissolved in water and mixed with a small quantity of the palladium solution; the liquid being then introduced into a gas-burette containing hydrogen, standing over mercury. Absorption of the gas commences immediately and the reaction is completed in a few hours. No heating is required. Oleic acid, under these conditions, is converted almost quantitatively into stearic acid. Castor oil, dis-

[1] *Ber.*, **37**, 124 (1904); **38**, 1398 (1905).
[2] *Ibid.*, **38**, 1406, 2414 (1905); **40**, 2209 (1907).
[3] *Ibid.*, **41**, 2273.
[4] *Ibid.*, **41**, 2282 (1908).

solved in a mixture of ether and alcohol, is transformed into a crystalline fat, which softens at 69° and melts at 77°.

The behavior of olive oil is very peculiar. It combines with three times the quantity of hydrogen which was anticipated from its behavior with iodine. The product, which in general properties resembles that from castor oil, is still capable of combining with iodine. Unless, therefore, some flaw can be shown to exist in the experiments, it will be necessary to revise our ideas of the processes which take place during the ordinary testing of oils and fats with iodine (Hübl's method).

Train oil absorbed about 30 per cent. more hydrogen than was anticipated. The yield of solid fat was quantitative. Before reduction the train and olive oils were converted into emulsions with water and a little gum arabic.

These results promise to be of great importance to plant physiologists, because the reactions proceed under conditions comparable, in a number of respects, with those under which similar or identical products are formed in nature. To the industrial chemist the results may also prove to be of considerable value; a reasonably cheap method of transforming liquid oils into solid fats has been much sought after.

J. BISHOP TINGLE

McMASTER UNIVERSITY,
TORONTO, CANADA,
August, 1908

SOCIETIES AND ACADEMIES

JOINT MEETING OF GEOLOGISTS OF THE NORTHEASTERN UNITED STATES WITH THE SECTION OF GEOLOGY AND MINERALOGY OF THE NEW YORK ACADEMY OF SCIENCES

THE Section of Geology and Mineralogy of the New York Academy of Sciences in cooperation with the geologists of neighboring institutions held an all-day meeting on April 6. The general invitation sent out by the academy met with a generous response. Representatives attended from Massachusetts Institute of Technology, Amherst, Wesleyan, Universities of Vermont and Pennsylvania, Dartmouth, Lehigh, Rutgers, Harvard, Yale, New York University and Columbia in addition to the local membership. Two sessions were held, one in the rooms of the department of geology at Columbia University, the other in the academy quarters at the American Museum of Natural History. Fourteen papers were presented and eight others were read by title. Abstracts of some of these papers are given below:

The Cambrian Rocks of Vermont: G. H. PERKINS, State Geologist of Vermont.

So far as satisfactorily determined, the Cambrian of Vermont occupies a narrow strip from north to south through the state between the Green Mountains and Lake Champlain. In some places they reach the shore of that lake and form the boldest of the headlands.

Northward the Cambrian extends to the Gulf of St. Lawrence and south through New York to middle Alabama.

It is probable that there are derivatives from Cambrian strata in and east of the Green Mountains, but none have been certainly identified. So far as studied, all the beds belong to the Olenellus zone of Walcott, or Lower Cambrian. The very interesting and extensive fault and overthrust by which Cambrian strata were lifted and thrown over the Utica is noticed. In all there are not less than 10,000 feet of Cambrian beds in western Vermont. These beds consist of 1,000 feet of more or less silicious limestone, and the other rocks are shales, sandstones, quartzites, conglomerates, of very diverse color composition and texture. In a few places the red sandrock beds change to a thick-bedded brecciated calcareous rock which when worked is the Winooski or Champlain marble—a mottled red and white stone used in many large buildings in many parts of the country.

Few of the beds are fossiliferous, but some abound in trilobites, Olenellus, Ptychoparia, etc., and a few brachiopods, worm burrows, trilobite and other tracks, etc., are also found. In all the number of species is not large, probably not more than fifty have been found. Of these, trilobites form the larger number, brachiopods coming next. A large portion of the species were described from the Vermont beds and many have not been found elsewhere.

Most of the beds are thin, but there are some several feet thick.

The great beds of roofing slate which are extensively worked in southwestern Vermont are included in the Cambrian.

Newark Copper Deposits of Pennsylvania: EDGAR T. WHERRY, University of Pennsylvania.

The Newark series in eastern Pennsylvania is divisible into five formations, and attains a total